

FIG. 1

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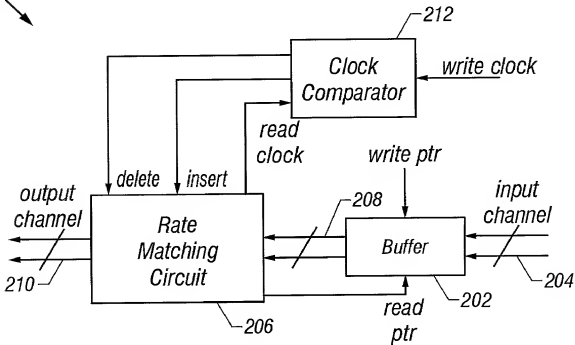


FIG. 2

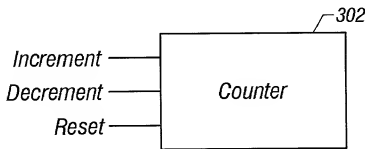


FIG. 3

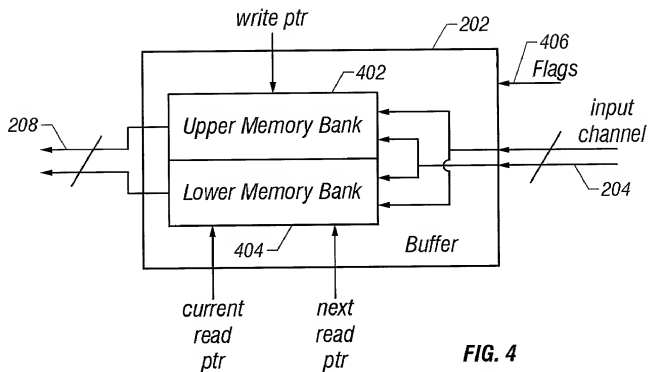


FIG. 4

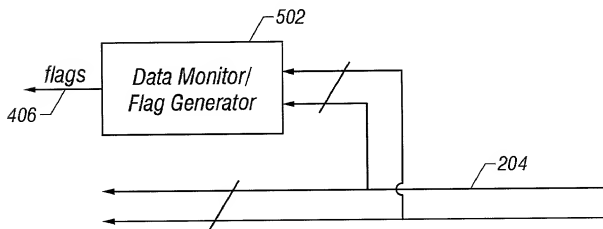


FIG. 5

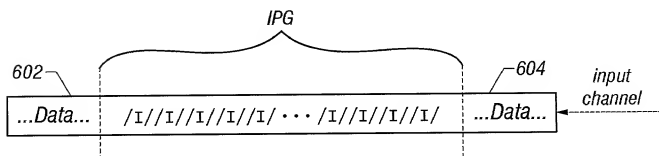


FIG. 6

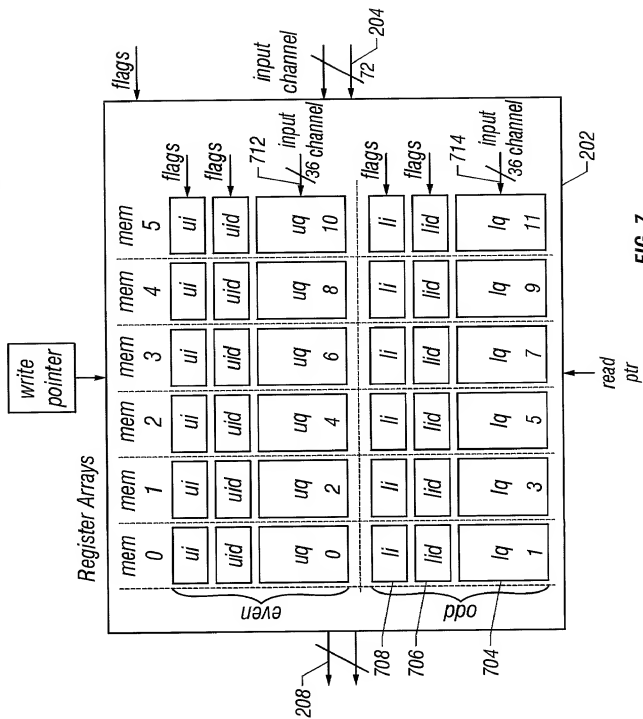
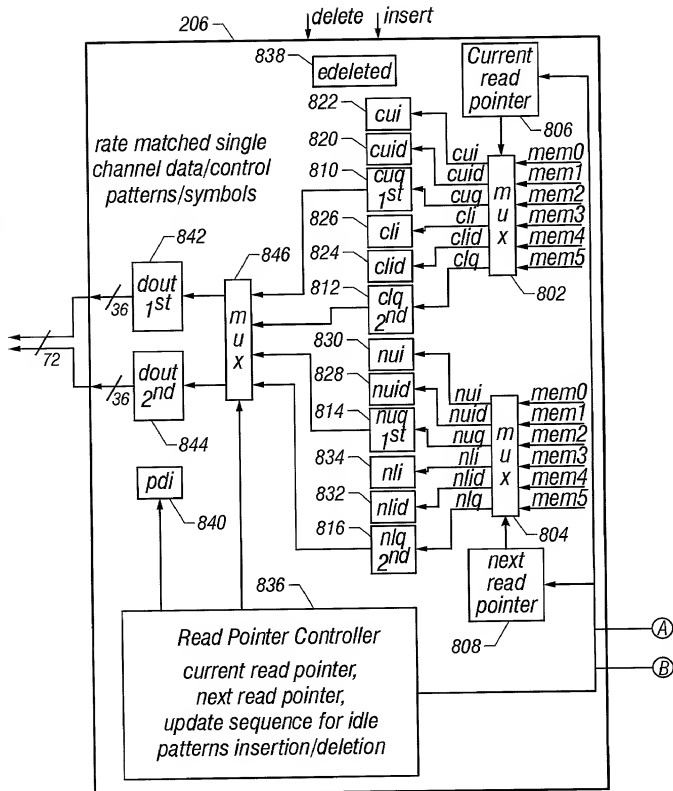


FIG. 7



**FIG. 8A**

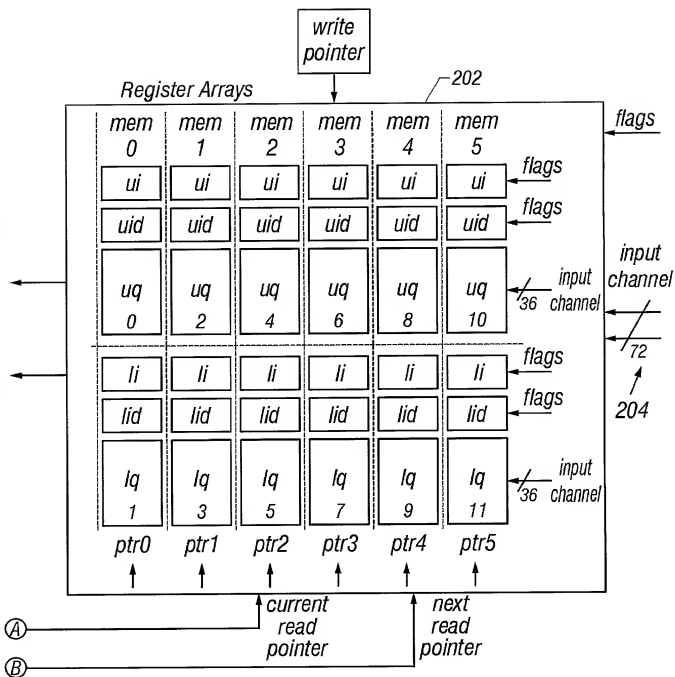


FIG. 8B

No deletable sets:

{delena, cuid, cli} = 3'b100, or  
 {delena, cuid, cli} = 3'b0xx

deleted = 0 → 0

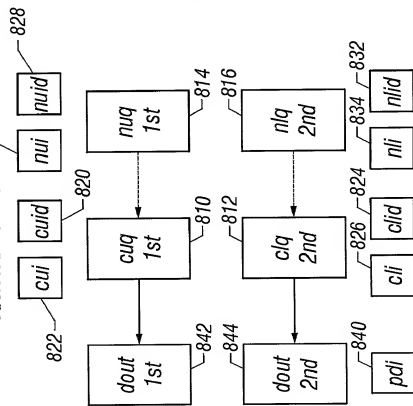


FIG. 9

Current upper queue cuq 1st set is deletable:

{delena, cuid, cli} = 3'b11x

deleted = 0 → 1

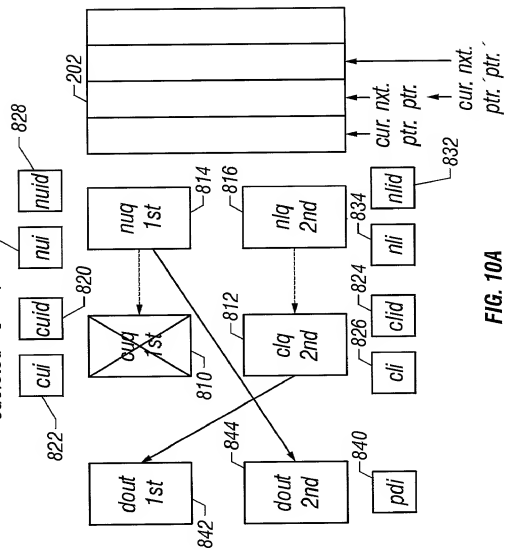


FIG. 10A

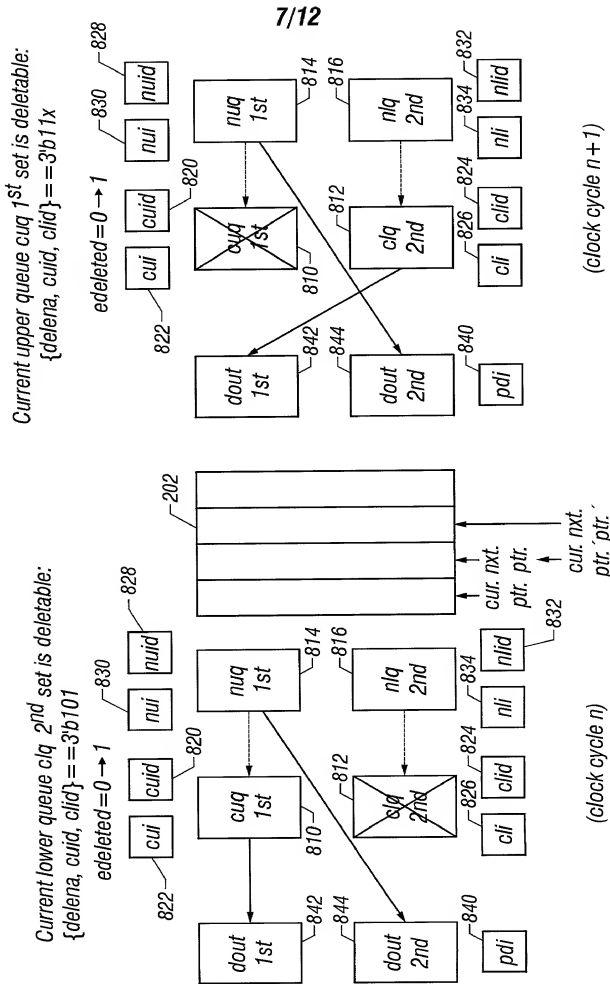


FIG. 10B

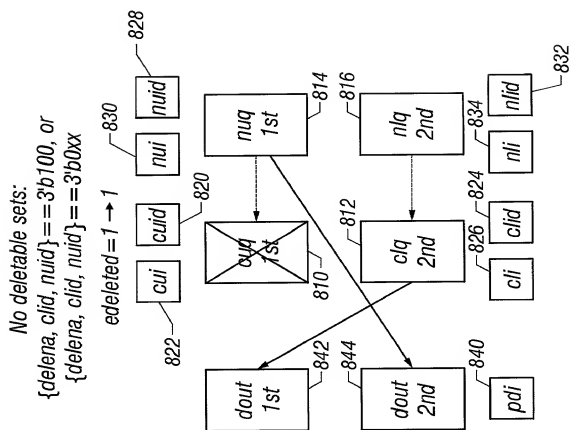
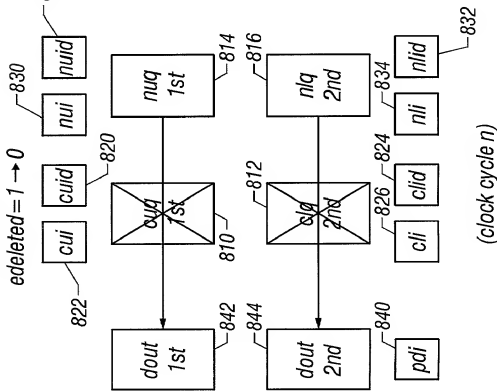


FIG. 11A



Current lower queue clq 1<sup>st</sup> set is deletable:  
 {delena, clid, nuid} == 3'b11x

$$deleted = 1 \rightarrow 0$$


No deletable sets:

 $\{delena, clid, nuid\} == 3'b100, or$ 

$xx09.3==\{pinu\}piz\ eu3/3p3$

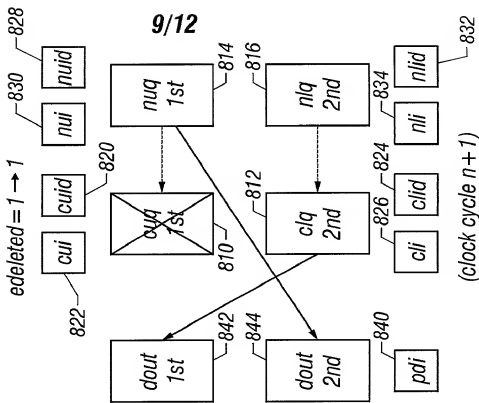
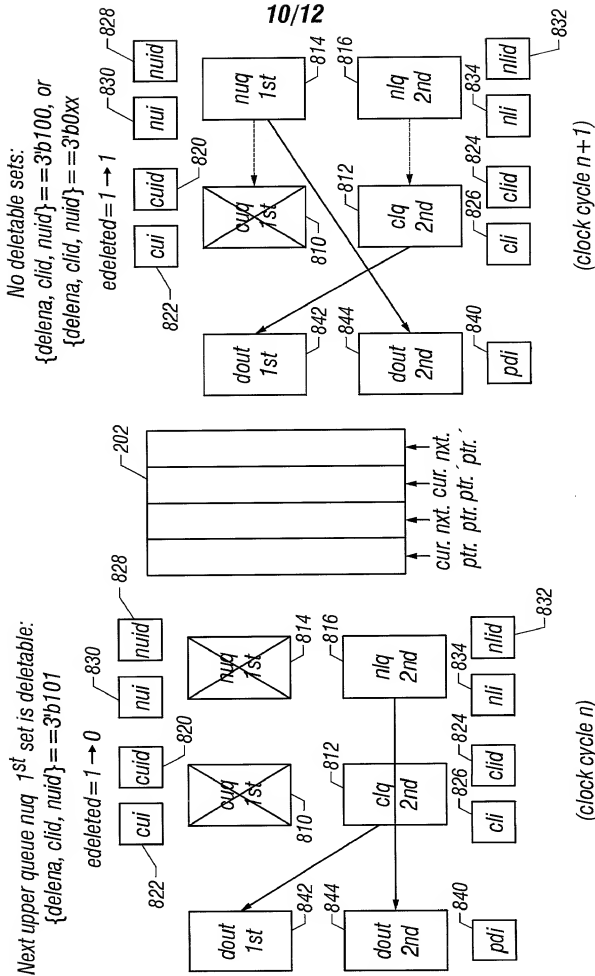
$$deleted = 1 \rightarrow 1$$


FIG. 11B



Previous dout 2<sup>nd</sup> set is Idle:

insena && pdi = '1'b1

deleted = 0 → 0

830

nui

nuid

828

cui

cuid

822

cuq 1st

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Current upper queue *cuq* 1<sup>st</sup> set is deleted and  
current lower queue *clq* 2<sup>nd</sup> set is idle:  
Inserta && (*cli* && *Edeleted*) = = '1'b1

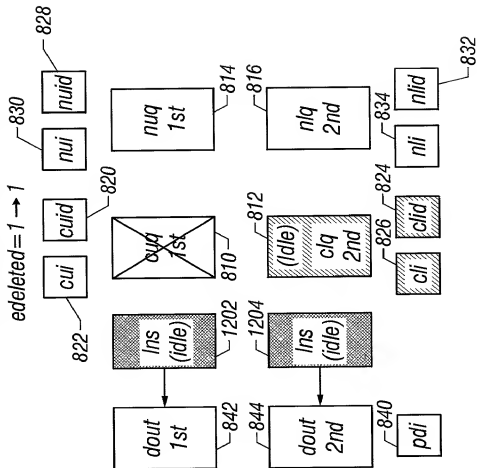


FIG. 12C